भारतीय मानक
Indian Standard

IS 13998 : 2021

कई नोंकों वाले हीरे के अंतर्भरित समतलन औजार — विशिष्टि

(पहला पुनरीक्षण)

Multi-Point Diamond Impregnated Dressing Tools — Specification

(First Revision)

ICS 27.100.10

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भारतीय मानक ब्यूरो
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Abrasives Sectional Committee, and approval of the Production and General Engineering Division Council.

Multi-point diamond dressing tools are used for dressing and truing of grinding wheels. These are capable of taking higher feed rates and reduce dressing time. Mounting of multi-point diamond impregnated dressing tools may be done either.

a) By swiveling holders with morse taper shank MT 0 and MT 1 or parallel shanks; or

b) Rigidly brazed on morse taper shanks MT 0 and MT 1 or parallel shanks.

While preparing this specification, considerable assistance has been derived from the details supplied by the manufacturers and users of this product.

This Indian Standard was first published in 1994. This revision has been taken up for introducing changes based on the technological changes happened in the industry.

In this revision, the following changes have been made:

a) Table 3 has been modified in this revision.

b) Normative references have been updated.

The composition of the Committee responsible for the preparation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’.

Indian Standard

MULTI-POINT DIAMOND IMPREGNATED DRESSING TOOLS —SPECIFICATION

1 SCOPE

This standard covers the requirements of multi-point diamond impregnated dressing point tools.

2 REFERENCE

The following Indian Standard contains provisions which through reference in this text, constitute provisions of this standard, at the time of publication, the editions indicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of standards indicated below:

IS No	*Title*
17097 : 2019/ ISO 6106 : 2013	Abrasive products checking the grain size of super abrasives

3 TYPES

The multi-point diamond impregnated dressing tools shall be of following types:

a) Type BD — Blade dresser;
b) Type ID — Impregnated dresser; and
c) Type SD — Surface set dresser.

4 DIMENSIONS

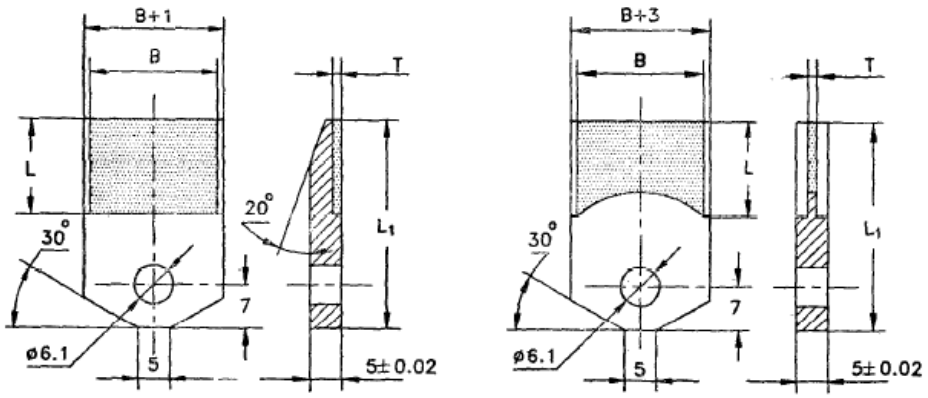
The dimensions for type BD, ID and SD multi point diamond impregnated dressing tools shall be as given in Tables 1, 2 and 3 respectively.

5 CONSTRUCTION

The arrangement of the diamonds in the set dresser (SD) type of muilitpoint diamond dresser shall be equally spaced as given in Fig. 1 based on the number of diamonds on the tool.

Table 1 Dimensions for Multi-Point Diamond Impregnated Tool, Blade Dresser Type BD

(*Clause* 4)



FORM A
(FACE LOCATED)

FORM B
(CENTERALLY LOCATED)

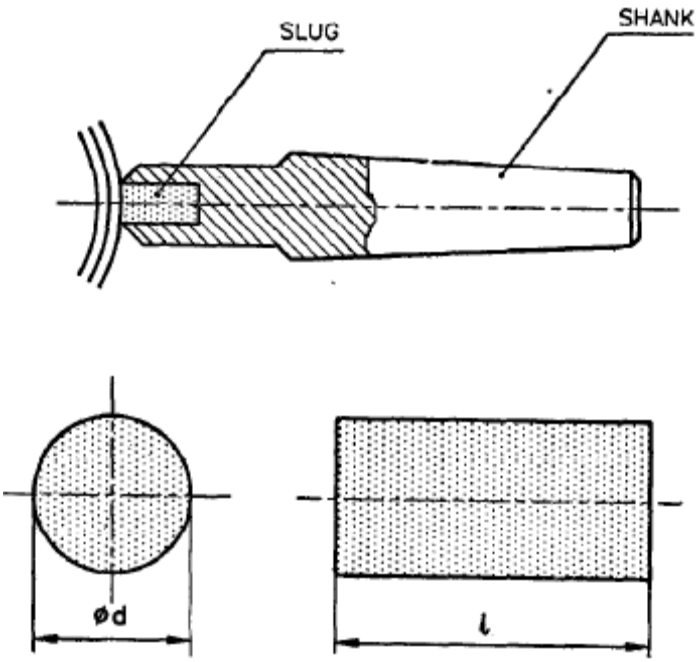
All dimensions in millimetres

Width of Blade	Length of Diamond Impregnated Area	Total Length of the Blade	Diamond Blade Thickness
B	L	L_1	T
20	15	33	0.75,0.90, 1.1, 1.40
15	10	28	
10	15	33	
10	10	28	

Table 2 Dimensions for Multi-Point Diamond Impregnated Tools, Impregnated Dresser Type ID

(*Clause* 4)

All dimensions in millimetres



All dimension in millimeters.

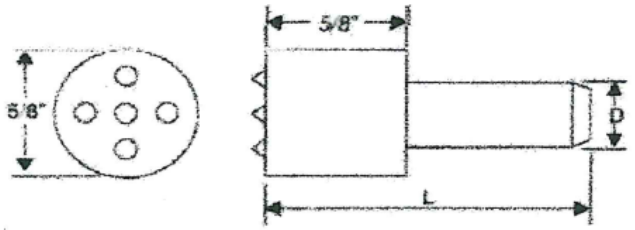
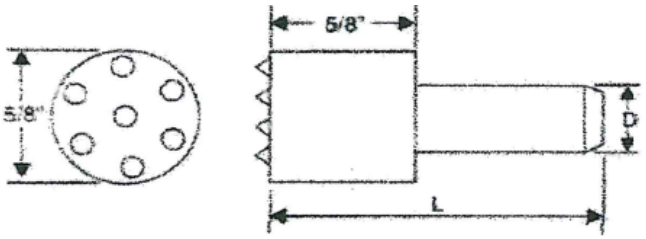
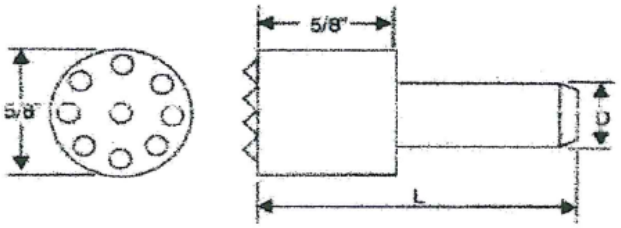
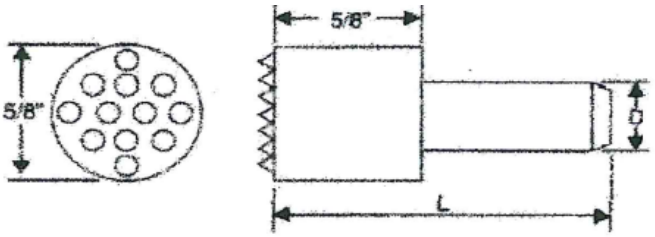
Slug Dia *d*	Slug Depth *l*
4 5 6 8	8 or 10
10 12 15	6

Table 3 Dimensions for Multi-Point Diamond Impregnated Tool, Surface Set-Dresser Type SD

(*Clause* 4)

All dimensions in millimetres

(5/8” = 15.875 mm)

Size	CT.WT	DIMENSIONS
5/D	0.75	
7/D	1.00	
9/D	1.00	
12/D	1.00	

SIZES:

.EM-24 with 24 Diamonds for wheel size up to 600 mm diameter wheel

.EM-36 with 36 Diamonds for wheel size above 600 mm diameter wheel

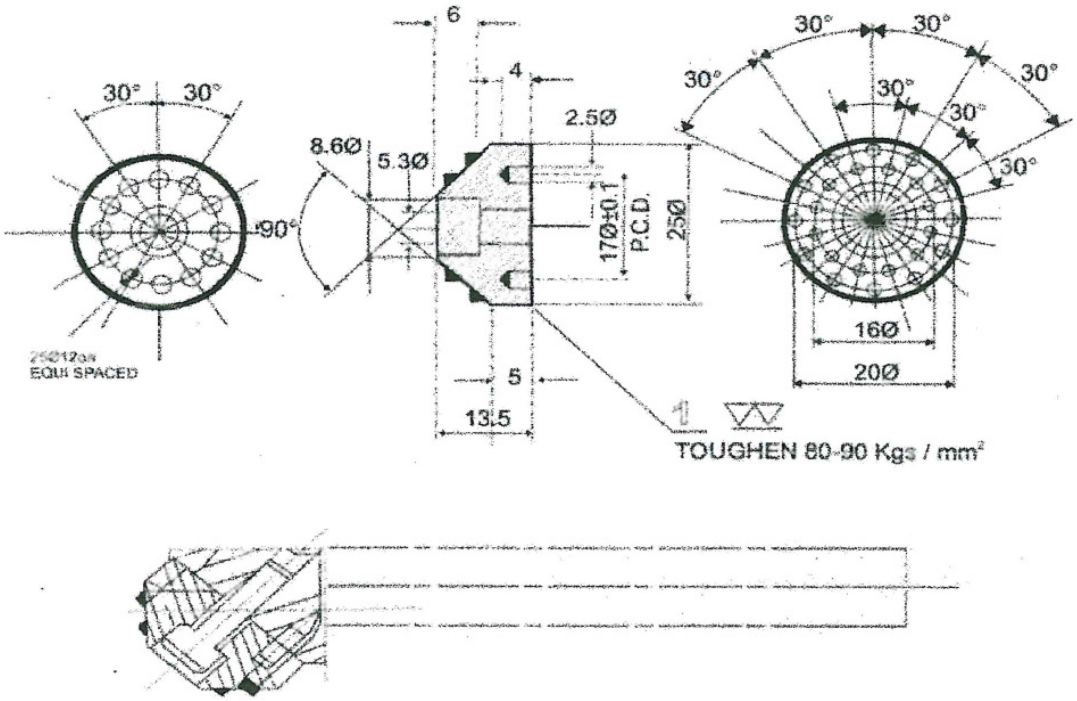


FIG 1 TYPICAL ARRANGEMENT OF THE DIAMONDS ON THE TOOL (SD TYPE)

6 MATERIAL

6.1 For bonding the metal matrix powder shall be used. However, exact composition and mechanical properties required for a matrix shall depend upon the following factors:

a) Specification of grinding wheel to be dressed,
b) Operating parameters,
c) Surface finish required, and
d) Type of coolant used.

6.2 Shank of the tool shall be made from carbon steel of tensile strength not less than 700 MPa

(1 MPa = 0.1 kgf/mm^2).

6.3 The diamond grains required for these dressers shall be as given in Table 4.

7 DESIGNATION

Multi-point diamond impregnated dressing tool shall be designated by its commonly used name. type, diameter/width of blade and number of this standard.

Example I

A multi-point diamond dressing tool of type BD. Form A, having width B = 20 mm, length of diamond impregnated area L = 15 mm, thickness T = 0.90 and conforming to this standard shall be designated as:

Diamond dressing tool IS 13998 BD – A20 × 15 × 0.90

Example 2

A multipoint diamond dressing tools of type ID having slug diameter d = 6 mm, slug depth l = 8 mm and conforming to this standard shall be designated as:

Diamond dressing tool IS 13998 ID 6 × 8

Example 3

A multi-point diamond dressing tools of type 5/D and conforming to this standard shall be designated as:

Diamond dressing tool IS 13998 5/D

8 MARKING

8.1 Each piece of multi-point diamond tool shall be legibly and indelibly marked with the following:

a) Type,
b) Diameter/width, and
c) Manufacturer's name or trade-mark.

8.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

9 PROTECTIVE COATING AND PACKING

9.1 The diamond points shall be suitably protected to avoid damage during handling and transportation.

9.2 The complete tool shall be packed securely in suitable boxes with appropriate cushioning material to prevent the movement of each tool and then packed in containers/boxes.

9.2.1 Each carton shall contain only one type and size of the tools.

Table 4 Diamond Grains for Multi-Point Dressing Tools

(*Clause* 6.3)

Type of Dresser	Quality of Diamond Grains	Size Designation of Diamond Grains
BD	Good quality elongated diamond	a) Elongated diamond to be selected as per application
ID	Good quality with blocky diamond	D 850
SD	Specially sized and selected diamond	As per application

*For more details on diamond grains, refer IS 17097 : 2019

NOTE — The caratage of diamond grains depends upon the size and other details of grinding wheel, like material to be removed from the wheel and surface finish desired.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Abrasives Sectional Committee, PGD 09

Organisation	*Representative(s)*
In personal Capacity	Shri Niranjan Sahasrabudhe (***Chairman***)
Grindwell Norton Ltd, Mumbai	Shri Ajay Deshpande
Research & Development Estt (Engrs), Pune	Shri N. K. Chaudhary Shri Vinod Kumar Pandey (*Alternate*)
Bharat Heavy Electricals Limited, Haridwar	Shri Vaibhav Bansal Shri Harshit Anand (*Alternate*)
Bosch Limited, Bengaluru	Shri Rajesh N. Shri Subrahamanya (*Alternate*)
Carborundum Universal Ltd, Chennai	Dr A. Xavier Kennedy Ms Lakshmi Prabha (*Alternate* I) Shri Satyabrata Gosh (*Alternate* II)
Director General of Quality Assurance, New Delhi	Lt Col S. Choudury Shri Y. Nagi Reddy (*Alternate*)
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IIT, Chennai	Dr N. Ramesh Babu
IIT, Mumbai	Dr Sushil Mishra Prof Bhalchandra Puranik (*Alternate*)
Industrial Diamond Association of India, Mumbai	Shri Hemant M. Shah Shri Girish K. Zaveri (*Alternate*)
Tata Motors Ltd, Pune	Shri Hanamanth Gaurav Shri Ramesh Kulkarni (*Alternate*)
Micromatic Grinding, Faridabad	Shri Kapil Chand Shri R. K. Mahajan (*Alternate*)
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FAG, Schaffler Machine Manufacturer	H. J. Shah Gopalakrishnan Sathyanarayanan (*Alternate*)
LBCR Corporation	Santosh Anant Potnis
Stay Sharp Diamond Tools Pvt Ltd, Mumbai	Dr Vivek Singal
BIS Directorate General	Shri Navindra Gautham, Scientist 'E' and Head (PGD) [Representing Director General (*Ex-officio*)]

Member Secretary

Shri Narender reddy beesu
Scientist 'D' (PGD), BIS

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